IN THE CLAIMS:

Claim 1. (Amended) An electrophoresis channel sieving and coating composition, for use in a microfluidics device, comprising: a buffered aqueous solution of from about 0.05 to 7.5 wt% each of a sieving polymer and a channel coating polymer in a weight ratio of 1-10:1, wherein said coating polymer is less water soluble than said sieving polymer.

Claim 2. (Amended) The composition of claim 1, ~~for use with a microfluidics device having~~ a ~~PMMA or a cyclic olefin polymer substrate,~~ wherein the coating polymer is a copolymer of N-substituted acrylamide.

Claim 3. (Amended) The composition of claim 2, wherein the coating polymer is a co-polymer of diethylacrylamide and dimethylacrylamide.

Claim 4. (Amended) The composition of claim 3, wherein the weight ratio of the ~~N,N-diethyl acrylamide~~ diethylacrylamide to ~~N,N-dimethyl acrylamide~~ dimethylacrylamide is in the range of about 1.5-3:1.

Claim 5. (Canceled)

Claim 6. (Original) The composition of claim 1, wherein said sieving polymer is selected from the group consisting of acrylamides and methacrylamides.

Claim 7. (Amended) The composition of claim 6, wherein the sieving polymer is a linear acrylamide or N,N-dimethylacrylamide homopolymer of from 500-5,000 kDal average molecular weight, and the coating polymer is a linear copolymer of two different N,N-dialkylacrylamides, wherein the alkyl groups are methyl, ~~ethy6l~~ ethyl, or propyl groups.

Claim 8. (Amended) The composition of claim 1, which further includes a dsDNA ~~denaturing amount of a~~ denaturing agent.

Claim 9. (Original) The composition of claim 1, which includes a Tris, borate, or TAPS buffer, at a concentration in the range of about 0.025 to 0.2M.

Claim 10. (Amended) A microfluidics electrophoresis device comprising a polymer substrate having a separation channel formed therein, contained within said channel, a composition comprising a buffered aqueous solution of from about 0.05 to 7.5 % by weight each of a sieving polymer and a channel coating polymer in a weight ratio of 1-10:1, wherein said coating polymer is less water soluble than said sieving polymer.

Claim 11. (Original) The device of claim 10, wherein said substrate is formed of PMMA or a cyclic olefin polymer, and said coating polymer is a copolymer of N-substituted acrylamide.

Claim 12. (Amended) The device of claim 11, wherein the coating polymer is a co-polymer of diethylacrylamide and dimethylacrylamide.

Claim 13. (Amended) The device of claim 12, wherein the weight ratio of the ~~N,N-diethyl acrylamide~~ diethylacrylamide to ~~N,N-dimethyl acrylamide~~ dimethylacrylamide is in the range of about 1.5-3:1.

Claim 14. (Amended) The device of claim 13, wherein the substrate is formed of a cyclic olefin polymer, and the weight ratio of the ~~N,N-diethyl acrylamide~~ diethylacrylamide to ~~N,N-dimethyl acrylamide~~ dimethylacrylamide is in the range of about 1.5-3:1.

Claim 15. (Amended) A method of carrying out repeated electrophoretic separations on a polymer substrate in an electrophoretic device, comprising adding the polymer solution of ~~claim 1,~~ claim 1 to a microfluidics device having a polymer substrate with a separation channel formed therein, performing an electrophoretic separation in said ~~channel'replacing~~ channel, replacing the polymer composition in the channel with the same polymer composition, and repeating said performing and replacing steps.

Claim 16. (Amended) The method of claim ~~3~~ 15, wherein said performing step is performed at a temperature of between 50-60.degree. C.